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An Archeological Survey and Assessment of Cultural Resources of the Chicago Bridge and Iron Company's Victoria Bluff Facility, Beaufort County, South Carolina

Randolph J. Widmer

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An Archeological Survey and Assessment of Cultural Resources of the Chicago Bridge and Iron Company's Victoria Bluff Facility, Beaufort County, South Carolina

Description

An archeological survey of a 140 acre tract of land on the Colleton River, Beaufort County, South Carolina, scheduled for industrial development by the Chicago Bridge and Iron Company, was conducted by the Institute of Archeology and Anthropology on April 14-17, 1976. Surface investigation and subsurface sampling were used to locate eleven archeological sites on, or very near, the impact zone, two of which (38BU105 and 38BU106) had been recorded in a previous survey in 1973. One site (38BU125) is of the historic period but appears to have been almost totally destroyed by bank erosion and its remains are probably washed into the Colleton River. Underwater investigation of this area is recommended. Four sites (38BU106, 38BU126, 38BU127, and 38BU128) are outside the impact zone but relate directly to those within the impact zone. One of these (38BU128) will apparently be affected by the project as it is said to be scheduled for use as a spoil area. Seven sites are within the direct impact zone, five of which (38BU124, 38BU129, 38BU130, 38BU131, and 38BU132) are stratified shell midden sites of the Wilmington culture period dating from about A.D. 700 to A.D. 1100. These five sites exhibit a patterned cultural content and geographic location that is consistent throughout. Each is a series of discrete shell middens situated in the interior (away from the river) and adjacent to prehistoric freshwater lakes or ponds. This kind of consistent settlement pattern is extremely important to the understanding of a culture complex. A settlement-subsistence pattern adapted to intensive exploitation of fresh water, coastal resources is suggested. This adaptive pattern has been termed the Coastal Lacustrine Adaptive Pattern. Three of the sites discussed in the paragraph above (38BU124, 38BU129, and 38BU132) are recommended for nomination to the National Register of Historic Places. It is recommended that each of these three be extensively excavated and interpreted in order to mitigate the adverse affects to them that the construction project poses.

Keywords

Excavations, Colleton River, Chicago Bridge and Iron Company, Beaufort County, South Carolina, Archeology

Disciplines

Anthropology

Publisher

The South Carolina Institute of Archeology and Anthropology--University of South Carolina

Comments

In USC online Library catalog at: <http://www.sc.edu/library/>

AN ARCHEOLOGICAL SURVEY AND ASSESSMENT OF CULTURAL
RESOURCES OF THE CHICAGO BRIDGE AND IRON COMPANY'S
VICTORIA BLUFF FACILITY,
BEAUFORT COUNTY, SOUTH CAROLINA

by

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Research Manuscript Series, No. 91

Prepared by the
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April, 1976

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ABSTRACT

An archeological survey of a 140 acre tract of land on the Colleton River, Beaufort County, South Carolina, scheduled for industrial development by the Chicago Bridge and Iron Company, was conducted by the Institute of Archeology and Anthropology on April 14-17, 1976. Surface investigation and subsurface sampling were used to locate eleven archeological sites on, or very near, the impact zone, two of which (38BU105 and 38BU106) had been recorded in a previous survey in 1973.

One site (38BU125) is of the historic period but appears to have been almost totally destroyed by bank erosion and its remains are probably washed into the Colleton River. Underwater investigation of this area is recommended.

Four sites (38BU106, 38BU126, 38BU127, and 38BU128) are outside the impact zone but relate directly to those within the impact zone. One of these (38BU128) will apparently be affected by the project as it is said to be scheduled for use as a spoil area.

Seven sites are within the direct impact zone, five of which (38BU124, 38BU129, 38BU130, 38BU131, and 38BU132) are stratified shell midden sites of the Wilmington culture period dating from about A.D. 700 to A.D. 1100. These five sites exhibit a patterned cultural content and geographic location that is consistent throughout. Each is a series of discrete shell middens situated in the interior (away from the river) and adjacent to prehistoric freshwater lakes or ponds. This kind of consistent settlement pattern is extremely important to the understanding of a culture complex. A settlement-subsistence pattern adapted to intensive exploitation of fresh water, coastal resources is suggested. This adaptive pattern has been termed the Coastal Lacustrine Adaptive Pattern.

Three of the sites discussed in the paragraph above (38BU124, 38BU129, and 38BU132) are recommended for nomination to the National Register of Historic Places. It is recommended that each of these three be extensively excavated and interpreted in order to mitigate the adverse affects to them that the construction project poses.

INTRODUCTION

In October, 1973 an archeological survey was conducted by Dr. Leland G. Ferguson of the Institute of Archeology and Anthropology of a portion of the Chicago Bridge and Iron Company's property at Victoria Bluff. This brief survey included parts of two day's work and was conducted incidental to another project in that area of the State. The National Park Service had requested information concerning the archeological resources on this property only as pertained to the immediate bluff area where a docking facility, or wharf, was to be built and specifically not on the rest of the property. A survey of the rest of the property was to be arranged for at a later date.

Dr. Ferguson's survey located two archeological sites. One was a scattering of specimens along the river bank (38BU105). The other was located in the salt marsh just off the survey area (38BU106). Neither site was of sufficient merit to promise very much cultural information if further investigated. Dr. Ferguson's report (Ferguson 1973) did, however, recommend extensive investigation of the remainder of the Chicago Bridge and Iron Company's property at the appropriate time.

In April, 1976 the Institute was requested to make an archeological survey of the 140 acres of the Chicago Bridge and Iron Company's property that was scheduled for development. This included the shore line previously surveyed by Dr. Ferguson. Time was of the essence and a survey team was put together hurriedly by taking people off other projects. Time was not available to obtain appropriate plans of the anticipated industrial development at the site nor to prepare a proposal, work plan, or formal agreement for the work. A map of the outline of the area was provided and the survey team conducted the field investigation during

the period of April 14 to 17, 1976. This team consisted of Randolph J. Widmer and David Ballenger of the Institute's staff.

This second survey was designed for the purpose of locating and evaluating archeological resources within a proposed 140 acre tract of land that is proposed for industrial development. This tract is located on the right bank of the Colleton River, within the Foot Point Plantation, some four miles northeast of Bluffton, Beaufort County, South Carolina. Since details of construction plans within this tract are not yet available to the archeologist it must be assumed that the entire 140 acres will be affected by the development and that the entire land surface will be disrupted. All archeological resources on this tract must be assumed to be adversely affected by the proposed construction.

A check of the state-wide Archeological Site Inventory maintained by the Institute indicated that no sites presently known in the area had been nominated to the National Register of Historic Places. Two other sites are on record in the nearby area (38BU104 and 38BU107), both having been recorded by Dr. Ferguson in 1973 but neither is directly affected by the Chicago Bridge and Iron Company's project.

ACKNOWLEDGEMENTS

I would like to express my appreciation to Mr. Edwin Boyer of the Beaufort County Development Commission, and to the Nichols family, caretakers of the Chicago Bridge and Iron Company's property, for their assistance and cooperation during the field investigation stage of the project. I am particularly grateful to David Ballenger for his competent and enthusiastic assistance in the field.

I would also like to thank Stanley South, Leland Ferguson, Darby Erd, Gordon Brown, and the others of the Institute staff for their time, support, and advise, without which this report would not be possible. Dr. Robert L. Stephenson, Director of the Institute, made all of the arrangements for this survey and served as overall coordinator of the work as well as editor of this report.

PHYSICAL ENVIRONMENT

The Chicago Bridge and Iron Company's impact area is located within the coastal biome of the Southeastern Coastal Plain (Larson 1969; Milanich 1971). This biome is one of two major environmental regions within the Southeastern Coastal Plain. The Pine Barrens biome constitutes the other biome. The coastal biome on the Southeastern Atlantic Coast is usually restricted to a one-mile section immediately adjacent to the Atlantic Coast. The Pine Barrens zone extends west from the interior edge of the coastal biome to the Piedmont Fall Line having a width of from 90 to 150 miles (Milanich 1971: 90).

Larson (1969: 13) further divides the coastal biome into three environmental zones: beach strand, lagoon and marsh, and delta biotypes. Milanich (1971: 97-98) has reorganized this division into the beach strand; lagoon, marsh, and barrier island; and live oak strand biotypes. Larson's typology will be followed, since the environmental conditions found within the impact area were highly atypical of those conditions usually found in the coastal region. Milanich's classification is highly specific while Larson's is more general in scope since it includes the entire Southeastern coastal area, not specifically the Georgia Coast which is the main concern of Milanich's typology.

The impact area is situated within the delta biotype. The Chicago Bridge and Iron Company's impact area is located on an ancient barrier island remnant. This landform is part of the late Pleistocene marine terrace known as the Princess Anne Formation (Colquhoun 1969). This terrace was deposited during a submerged period in the coastal accretional cycle when the sea level was approximately 25 feet above the present-day level. A coeval series of Late Pleistocene marine terraces is found in southeastern Virginia and is thought to date to the Sangoman, about 40,000 years ago (Oaks and Coch 1963: 982-983). Subsequent sea level fluctuations have created a seaward accretion of additional Pleistocene and Holocene marine terraces (Richards 1962; Colquhoun 1969).

Marsh plains were formed between the initial barrier island (Princess Anne Formation) and the original sea strand as the subsequent series of barrier islands was deposited. This sequence has produced a poorly defined sand barrier island remnant of the Princess Anne marine terrace which has been partially buried by fluvial sediments forming the adjacent marsh plains which were discharged during the submerged cycle associated with the deposition of the subsequent marine terrace formations. Today, the Princess Anne Formation has an elevation which ranges from eight to 17 feet above the present sea level.

The morphology of the Princess Anne marine terrace was established by the close of the Pleistocene, approximately 10,000 years ago. Only minor eolian and fluvial erosion and re-deposition has occurred since the original barrier island and adjacent salt marsh were formed (Colquhoun 1969: 33). However, the Colleton River has extensively cut into the landward face of the marine terrace in the immediate vicinity of the Chicago Bridge and Iron Company's property. This modification is

extensive and has resulted in a major environmental change in which a fresh water pond has been drained and turned into a salt marsh. This occurred when the river cut through the western bank of the former fresh water pond allowing salt water intrusion to occur. This can be seen in Figure 1.

Structurally, the marine terrace found within the impact area is composed of fine sand underlain by blue or grey clay (Cooke 1936). Geological test boring conducted in the Chicago Bridge and Iron Company's project area indicate that this clay was encountered at a depth of about 40 feet below the surface (Law Engineering Test Company 1973). The soil found at the site was loose fine sand, presumably an Entisol Series soil characterized by a lack or only incipient development of internal horizons. Humic topsoil within the impact area varied in thickness from almost non-existent in the southeast corner of the project area to a depth of 1.5 feet. In general, the organic content of the soil, particularly the topsoil, diminished in intensity in the eastern areas of the project.

The Chicago Bridge and Iron Company's project area is situated in a location which is close to a number of diverse microenvironments. Some of the specific microenvironments are unique or at least atypical of this area. The impact area in essence, forms an ecotone with these environments. The specific microenvironments found within or in close proximity to the impact area include the Colleton and Broad Rivers, the salt marshes adjacent to these rivers, particularly the one east of Colleton Neck, the oak-hickory climax forest, and the series of fresh water ponds and lakes found in the area. The tidal drained salt marshes provide shellfish, crabs, shrimp, waterfowl, and estuary fish resources. The barrier island remnant oak-hickory forest provides upland faunal

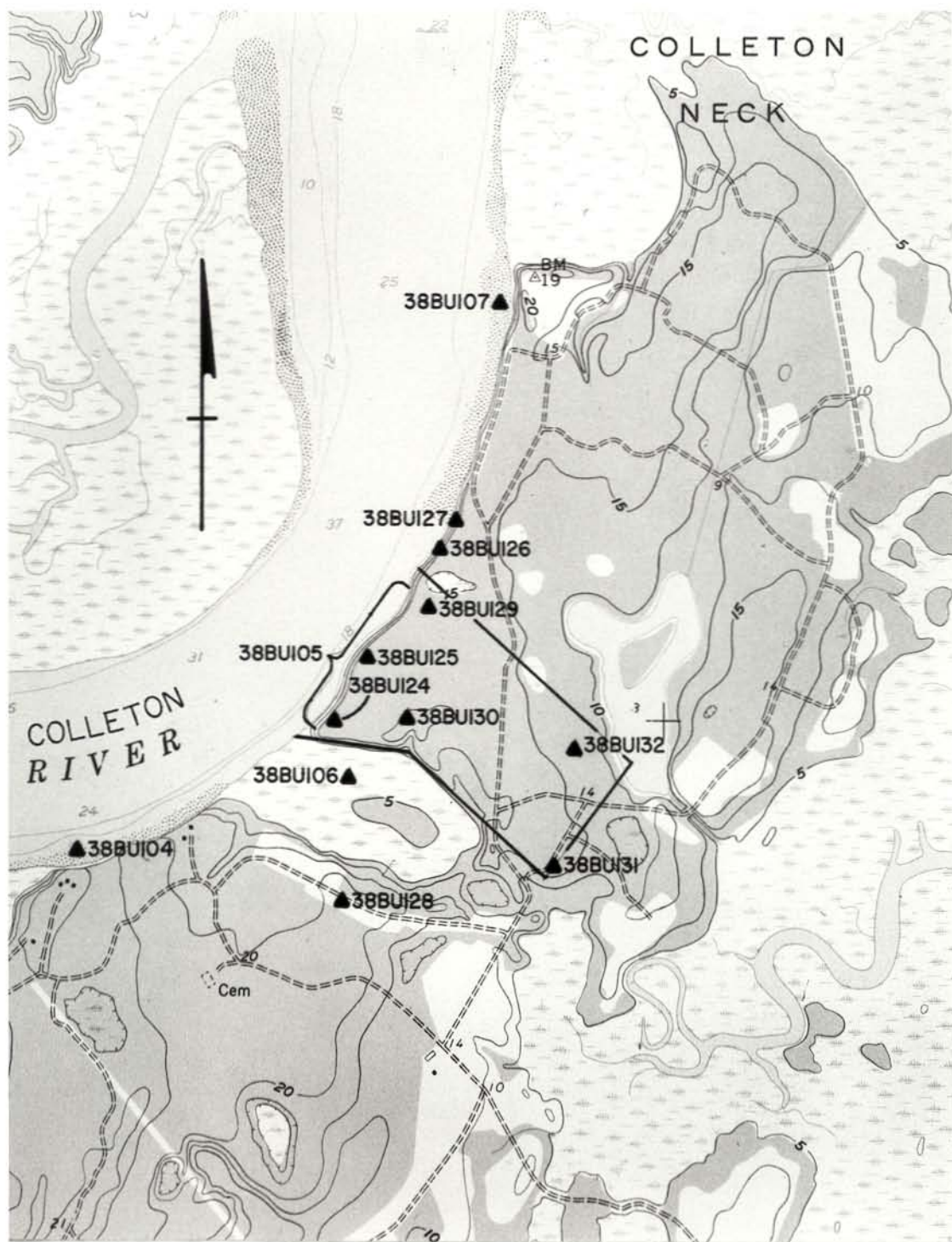


FIGURE 1. Archeological Site Location Map

resources such as deer and squirrel, and the important floral resources of acorns and hickory nuts (Caldwell 1958). The deep rivers and tidal creeks provide access to more open water varieties of fish and also marine mammals such as dolphins. The numerous fresh water lakes and ponds provide potable water, aquatic plant resources, migratory waterfowl, alligators, turtles, and fish.

The vegetation found within the impact area is very different from that which is typically found on this type of barrier island formation. A mature oak-hickory forest is located on the project area. A well developed canopy of 100 to 150 foot tall trees is present with little understory. Understory, when present, consists primarily of saw palmetto. Hickory is the most prevalent overstory member, with oak following in frequency. Water oak is the most numerous of the oaks, with scattered post oaks and a few pin oaks and red oaks observed. No live oaks were seen in the overstory. An occasional beech, sassafras, red bud, magnolia, and longleaf pine was noted as well.

The forest cover in the extreme southeastern portion of the project area is not as dense as in the other portions of the area and the saw palmetto understory is much thicker. This situation exists on less than one-tenth of the total site area. Even in this less dense area, the oak-hickory climax association remains present. Faunal resources within the research frame are particularly abundant, no doubt attributable to the rich mast produced by the oak-hickory forest. Numerous deer, snakes, and squirrels were observed in the wooded tract. These resources undoubtedly attracted the past inhabitants to this area. The environmental conditions within the impact area have been very little disturbed by European occupation subsequent to prehistoric utilization of the area.

Additionally, it is doubted if prehistoric groups of the Mississippian tradition utilized this area for agricultural purposes since the forest appears to be well established. The environmental conditions found within the project area probably prevailed during the prehistoric occupation of the area.

ARCHEOLOGICAL RESEARCH GOALS AND STRATEGY

A major goal of the survey was to locate as wide a range as possible of the past cultural activities recognizable within an archeological context within the impact area. Evidence of these activities would be collected and analyzed within a culture-ecological theoretical framework. Past behavioral subsystems such as settlement pattern, subsistence patterns, and socio-political organization would be treated as aspects of larger adaptive cultural systems utilized by man. The articulation of these cultural systems with the environment result in patterned relationships useful in the description and explanation of past behavioral patterns observable in the archeological record (Struever 1968, Goodyear 1975).

This form of inquiry is best executed on a regional basis, where the full range of behavioral variability within a cultural system, and the total of the environmental zones utilized and exploited by the cultural system would be present (Binford 1964, Struever 1968, Goodyear 1975). In this type of study, it is important to firmly control the temporal context of the cultural systems within the region. This is necessary to avoid the possibility of interpreting variability as functionally distinct behavior of a single cultural system when in actuality the

variability might result from activities of cultural systems which are different in time (Bordes and Sonnevile 1970). It is obvious that any small arbitrary project will not produce the total range of cultural systems which have utilized a region, nor will it necessarily contain the total range of variability of the activities within an individual cultural system. However, the survey of small areas does add to the development and understanding of cultural systems and a standing research design for regional study becomes an ideal mechanism for the integration of this fragmentary but highly important information generated from such studies (Goodyear 1975).

In addition to the synchronic study of past cultural systems, another of the goals of the survey, and of archeology in general, is the explanation of long term culture change (Struever 1968, Plog 1971, 1973, Leone 1972). The first step in the implementation of this goal is the explanation of cultural change within a region. This is best facilitated by developing a temporal sequence of regionally adapted culture-ecological systems. Only when this has been accomplished, can hypotheses be developed to explain the mechanisms responsible for the change from one system to another. The results of culture change studies from several regions can then be compared, and hypotheses and theoretical statements concerning general patterns of cultural change can be formulated.

As can be seen from this discussion, the need for well defined temporally discrete socio-cultural systems is of utmost importance. Only after such analytic units have been formulated, can hypotheses be developed for the explanation of cultural change from one cultural system to another within the culture sequence of a region.

METHODOLOGY

The dense forest cover and thick leaf mold made visible inspection of the site surface impossible. Additionally, there is a high probability of archeological sites being buried in coastal regions (South 1960, South and Widmer n.d.). This would result in a number of sites being unrecorded even if surface visibility was excellent. To circumvent these problems, a subsurface sampling strategy was employed.

Ideally, an interval aligned or random unaligned subsurface sampling scheme which would adequately cover the entire project area would be employed. These sampling designs have proved extremely effective in locating a wide range of past cultural activity present within an archeological context within similar environmental conditions (South and Widmer n.d.). Three factors contributed to the abandonment of this strategy:

1. The size of the impact area (140 acres) would require an inordinately large number of subsurface tests for adequate coverage. This estimate is based on expected density of cultural materials in such environments.
2. The dense permanent forest cover would cause major problems in the establishment of spatial control of the sampling scheme.
3. The limited time and personnel involved in the project was insufficient for the implementation of such a sampling design.

In lieu of a systematic sampling strategy, the following tactics were employed:

1. Visual inspection of the exposed beach and bluff face. All materials found on the beach would be associated where possible with the eroding areas of the bluffs from which they are thought to have come. These materials would then be related where appropriate with the adjacent bluff top site, if one exists.
2. Surface inspection of the entire fallow cultivated field on the south side of the salt marsh. Half of this field will be directly impacted by fill activities. Environmentally, this field, before it was cultivated, represented a mirror image of a portion of the tract north of the salt marsh. By surveying this field in its entirety, locating and noting size, artifact content, cultural

context, location, and depth of deposit of sites which should be visible through previous plowing, a generalized model of the nature and density of the cultural remains in similar portions of the wooded area of the impact zone can be derived.

3. Intensive subsurface investigation of all areas of high topographic relief. This is dictated on the assumption that such areas are known to have a high probability of containing sites.

4. Intensive subsurface sampling of the edge of Victoria Bluff which is immediately adjacent to the Colleton River.

5. Intensive subsurface investigation of all areas adjacent to water sources, both fresh and salt.

6. A number of "randomly" chosen transects along which intensive subsurface testing would be performed. These transects would cross-cut the impact area, and would be chosen to give uniform coverage of the project area. These tests would be continued until a confident statement concerning the distribution of archeological sites could be arrived at. This confidence factor is subjectively derived, and is formulated within a restrictive time framework.

Two tools were used in subsurface testing; the post-hole digger, and the steel probe. A ratio of about 20 probe strokes to one post-hole sample was typical. These tools were used in conjunction with each other. Based on the results of visual inspection of the open field, it was found that most cultural material was associated with shell. In most cases the probe would be able to record the presence of shell, at which time a post-hole sample could be obtained. The densest sample from each shell area was retained, and cultural material which was recovered from the less dense samples was kept to the exclusion of shell. No cultural material was recovered from the post-hole sampling which did not contain shell, in spite of exhaustive testing. This does not indicate that no such association exists, but suggests that if it does it is extremely low in density. A depth of two feet was utilized as the test standard. This put the test sample at least 0.5 feet below the humic zone in all areas of the impact zone.

Ceramic artifacts recovered from subsurface tests would be weighed as well as counted. This would negate the bias which is inherent in the post-hole sampling technique, since there is a high frequency of sherd breakage upon impact of the post-hole digger. This problem is particularly acute in shell middens. When both weight and counts are used simultaneously, not only the number of sherds can be seen, but their average size can be conceptualized.

In general, it is felt that the survey methods used were extremely effective in locating as wide a range as possible of the activities which have been preserved in an archeological context. It is naive to assume that all archeological sites have been located, but it is fairly reasonable to assume that a substantial range of the activities have been located; enough to make a sound statement on the cultural resources within the impact area.

CULTURAL RESOURCE INVENTORY

Eleven archeological sites were located during the survey (Fig. 1). All of these except three are within the direct impact zone. The size, location and cultural context of each site will be discussed below.

38BU105 -- Victoria Bluff Beach Site: Lat. 32°17'38"N, Long. 80°48'10"W

The Victoria Bluff Beach Site was first recorded by Dr. Leland G. Ferguson in 1973 and is located along the Colleton River beach immediately adjacent to Victoria Bluff. Cultural material was found scattered on the beach the entire distance of the Chicago Bridge and Iron Company's riverfront property line. The context of these artifacts has been destroyed and it is presumed that these materials have been eroded from the bluff face and re-deposited along the beach.

There are two scalloped erosional faces along the bluff which lie within the Chicago Bride and Iron Company's property area, another scalloped erosional face is located north of the impact area. Surface material was collected from each of the beaches adjacent to the scalloped areas. This material was kept separate assuming that the artifacts from each beach might have eroded from adjacent erosional faces of the bluff. The artifact assemblages from each area have been presented below. These areas are named in reference to adjacent sites located on the bluff top.

Artifact Assemblage surface, beach adjacent to 38BU124, present survey

Potsherds

Wilmington Cord-marked (sherd-tempered)	1	27.9 gm.
Wilmington Plain (sherd-tempered)	1	31.0 gm.
Residual Plain (sand-tempered)	1	29.4 gm.
Cut Deer Antler (two tines removed)	1	
Iron Hook	1	
Iron Spike	1	

Artifact Assemblage, surface, beach adjacent to 38BU124, Ferguson survey

Potsherds

Savannah Fine Cord-marked	1	41.7 gm.
Wilmington Cord-marked (grit-tempered)	2	62.0 gm.
Wilmington Cord-marked (sherd-tempered)	1	40.0 gm.
Wilmington Cord-marked (bone-tempered)	1	8.0 gm.
Deptford Simple-stamped	2	16.6 gm.

Artifact Assemblage, surface, beach adjacent to 38BU125, present survey

Potsherds

Colono-Indian	1	34.9 gm.
Deptford Linear-Checked-stamped	5	272.9 gm.
Chert Spalls	5	
Quartzite River Pebble Hammerstone	1	
Chert Nodule	1	
English Flint Ballast Stone	1	
Westerwald Stoneware	2	
Eighteenth Century English Bottle Glass	16	
Iron Fragments (Ship fittings?)	2	

Artifact Assemblage, surface, beach adjacent to 38BU126 and 38BU127

Potsherds

Deptford Linear Check-stamped	1	140.3 gm.
Wilmington Cord-marked (sherd-tempered)	1	53.0 gm.
Chert Uniface	1	
Eighteenth Century English Bottle Glass	3	
Clear Bottle Glass	1	
Plain Porcelain	1	

Comparison of the artifact contents from each of the three areas indicates that distinctive temporal differences occur in the area. The beach in front of 38BU124 contained predominately Wilmington Phase ceramics. The two iron objects are hard to evaluate, and may result from a riverine deposition rather than erosion from the bluff. The Wilmington sherds clearly have eroded from 38BU124, since this site is a single component Wilmington Phase site. The Savannah potsherd is slightly later in time than the Wilmington material, while the Deptford sherds are probably from an earlier occupation on the bluff which has eroded previous to the Wilmington Phase occupation. This statement is substantiated by observations from the beach adjacent to 38BU125.

The beach adjacent to 38BU125 contained a strong eighteenth century historic component, and a Deptford Phase component. Of interest is the complete lack of Wilmington Phase ceramics. Instead, Deptford Phase ceramics predominate. Chert debitage was also noted here but was absent from the beach adjacent 28BU124. Evidently, the former bluff sites represented by the eighteenth century historic material and the Deptford Phase presently found on the beach have been completely eroded from the bluff face.

The beach adjacent to 38BU126 and 38BU127 is outside the direct impact area. Cultural material was sparse and widely scattered. Because of the low frequency of the artifacts from the various periods, it is

impossible to determine whether this material represents components eroded from sites found along the bluff top.

38BU106 -- Lat. 32°17'25"N., Long. 80°48'12"W.

Site 38BU106 is situated in the salt marsh which is located adjacent to the south edge of the impact area. The site was recorded by Dr. Leland G. Ferguson during the 1973 survey. Cultural material was found at that time along the edge of a tidal stream which drains the swamp. No cultural material was found in the area during the present survey.

Artifact Assemblage, surface, Ferguson survey

Large Triangular Projectile Points	2
Chert Whinnying Flakes	23
Musket Ball	1

The artifact assemblage indicates that the former lake which is now a salt marsh was utilized during the Wilmington Period. This is indicated by the projectile points which were found in the former lake bottom. The musket ball indicates that this area was exploited for subsistence items during the historic period occupation of the area as well.

38BU124 -- The Victoria Bluff Point Site: Lat. 32°17'30"N, Long. 80°48'14"W.

The Victoria Bluff Point Site presently consists of two shell middens situated on the edge of Victoria Bluff. The site is about 50 feet north of Chicago Bridge and Iron Company's test boring number one. One of these shell lenses is eroding into the Colleton River and is visible in the bluff face. The remaining shell midden is situated about 50 feet off the bluff. The shell midden which is eroding from the bluff extends perpendicularly back from the bluff a distance of about 50 feet, and has a uniform width of about 20 feet. The site is covered by a 0.4 foot thick mantle of sand under which a 0.4 foot thick shell midden is found. The

shell is very dense, and without intermixed soil. A post-hole sample was taken, but no cultural material was obtained. This shell lens was labeled Provenience Three.

Post-hole Sample, Provenience Three

Shell	1244.5 gm.
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The remaining shell midden, Provenience Two, has dimensions and orientation similar to Provenience Three. Basically, the same stratigraphic context was found in this shell midden as was found at Provenience Three except that the fill was looser and contained more soil. This is reflected in the shell weights from the two samples. Unlike the previous test, cultural material was obtained from the post-hole sample.

Post-hole Sample, Provenience Two

Potsherds		
Wilmington Cord-marked (sherd-temepred)	6	26.4 gm.
Wilmington Plain (sherd-tempered)	1	2.4 gm.
Shell		749.6 gm.

Provenience Two clearly indicates a Wilmington Phase occupation. Although no cultural material was obtained from Provenience Three, the large number of Wilmington sherds found on the adjacent beach which probably eroded from this midden indicate a Wilmington association. While the two shell middens are spatially discrete, separated by a distance of about 75 feet, their closeness, similarity in size and orientation, and presumed cultural content indicate an identical cultural context. Of particular importance is the observation that the two linear or oval shell lenses are parallel with the salt marsh, which at the time of occupation was a fresh water lake, rather than the Colleton River. It is quite possible that numerous other shell lenses related to this site at one time existed on the bluff, but have eroded into the river. This site is important in the understanding of the Wilmington Phase utilization of this area and should be further investigated.

38BU125 -- Lat. 32°17'38"N., Long. 80°48'10"W.

This site is located approximately in the center of the Chicago Bridge and Iron Company's riverfront on a slight promontory of Victoria Bluff. The site consists of a small tabby and oyster shell rubble pile situated about 50 feet back from the bluff edge. The area surrounding the rubble pile was thoroughly tested with the probe and post-hole digger for the presence of a historic foundation. None was found despite exhaustive searching. However, an open well or cistern was located about 100 feet east of the rubble pile. No cultural material was located in the vicinity of these features. An eighteenth century wine bottle base was found about 200 feet north of the rubble pile on the bluff edge, but it is difficult to determine if it is associated with these features. The large number of historic artifacts, particularly mid-eighteenth century bottle glass found on the beach adjacent to 38BU125 indicate that an eighteenth century component, possibly a structure, existed on the bluff and has subsequently been eroded into the river. No historic structures are listed in Mill's Atlas and if any such structure had existed it was eroded prior to 1820. It is impossible at this time to discuss or evaluate the nature of the historic component. It will require an underwater reconnaissance to continue this discussion. The Deptford Phase ceramic material further suggests intensive erosion of the bluff, particularly in view of the total absence of prehistoric material from the present site area.

38BU126 -- Lat. 32°17'48"N., Long. 80°48'02"W.

This site is located on the bluff top about 300 feet north of the northern Chicago Bridge and Iron Company's property line. The site is a small shell midden eroding from the bluff face. No cultural material

was observed in the eroding areas of the site. A post-hole sample was not taken since the site was outside the impact area. 38BU126 is about 25 feet in diameter, has a thickness of about 0.2 feet, and is covered by about 0.2 feet of sand. It is not possible to definitely determine the cultural context of this site, but it is presumed to date to the Wilmington Phase based on its nearness to fresh water, since it is found on the edge of a pond.

38BU127 -- Lat. 32°17'53"N., Long. 80°47'58"W.

Site 38BU127 is also situated on the bluff top and is approximately 200 feet north of 38BU126. The site is similar in dimension and stratigraphic context to 38BU126 and is likewise eroding from the bluff face. No cultural material was collected nor was a post-hole sample taken. This site is assumed to belong to the Wilmington Phase due to its closeness to a small fresh water sink located about 150 feet east of the site.

38BU128 -- Lat. 32°17'09"N., Long. 80°48'00"W.

This site is situated in the middle of a long narrow field on the south side of the salt marsh which borders the impact area. The western half of this field has been planned for use as a spoil area. The site is a small shell scatter which has been exposed on the surface by former agricultural activity. The shell scatter is composed primarily of oyster with some clam and has an areal dispersion of about 40 feet in diameter. Cultural material was very sparse, and no bone was present.

Four tests, excavated by shovel, were placed in the vicinity to determine the stratigraphic context, if any, of the site. Two of these tests were placed in the area of greatest shell density, and two were

placed adjacent to the shell area. In all cases, no intact stratigraphy was found. All shell was confined within the plow zone. No cultural material was recovered from the tests, but some surface material was present.

Artifact Assemblage, surface

Potsherds

Wilmington Cord-marked (grit-tempered)	1	8.5 gm.
Savannah Fine Cord-marked	1	20.4 gm.
Grit-tempered Plain	1	5.9 gm.

Although this site has been destroyed, it was very important to the success of the survey. One of the assumptions for the survey methodology, as stated previously, was that this site was typical of sites in the area and survey tactics could be tailored to discover such "typical" sites. The site also presented a model of artifact density (very low) and the general survey of this field resulted in a crude but effective site density model for the project area. The site is considered to be a Wilmington or Savannah Phase site and its association with the fresh water lake to the north is clear.

38BU729 -- The Victoria Bluff Pond Site: Lat. 32°17'31"N., Long. 80°48'00"W.

The Victoria Bluff Pond Site consists of four shell lenses located within an elliptical area 250 feet by 100 feet situated 150 feet south of a fresh water pond on the edge of the Chicago Bridge and Iron Company's property line, and 300 feet east of the bluff edge. The four shell scatters are all stratified by a mantle of sand. These scatters are spatially distinct and appear to be arranged in a cruciform pattern with the long axis oriented north-south. The northernmost shell midden, Provenience Four, has a diameter of about 75 feet. The shell is very thin in density and is intermixed with dark midden-strained organic soil.

The soil does not extend below a depth of 0.7 feet, and was covered by a layer of sand which is about 0.4 feet thick. A post-hole sample was taken from this area. Two sherds were recovered in a post-hole test which was not selected for comparative purposes.

Post-hole Sample, Comparative Test, Provenience Four

Shell		18.2 gm.
Green-glazed Earthenware	1	

Post-hole Sample, Exploratory Test, Provenience Four

Potsherds		
Wilmington Cord-marked (grit-tempered)	2	28.9 gm.
Shell		9.6 gm.

The southernmost shell scatter, Provenience Three, is smaller than Provenience Four. It has a diameter of about 25 feet and contains a very thin scattering of shell intermixed with light grey sand. The shell-bearing lens is about 0.2 feet thick and is covered by 0.4 feet of sand. No cultural material was recovered from the post-hole sample.

The eastern shell scatter, Provenience Five, is a clearly defined midden about 30 feet in diameter. A moderately dense shell lens intermixed with dark midden-stained sand with a thickness of 0.3 feet was located 0.4 feet below the site surface.

Post-hole Sample, Provenience Five

Shell		174.9 gm.
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Provenience Two, the westernmost shell scatter was a dense shell lens with 0.5 feet of shell midden interspersed with light grey sand. This deposit was located 0.4 feet below the site surface. The site is about 50 feet in diameter. This provenience had the most shell of any of the previous scatters, but is slightly smaller than Provenience Four.

Post-hole Sample, Provenience Four

Shell		474.4 gm.
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These areas seem to represent a single site which, based on the artifact assemblage, contains a single Wilmington Phase component. The historic sherd recovered in one of the post-hole samples is considered to be intrusive and probably came from the overlying sand layer. This site might represent a clan or extended family settlement type for the Wilmington Phase and should be further investigated.

38BU130 -- Lat. 32°17'30"N., Long. 80°48'04"W.

Site 38BU130 is located on the northwest edge of a small sand ridge which extends in a northeasterly direction from the north edge of the salt marsh adjacent to the project border. The site is about 250 feet back from the salt marsh edge. The site consists of a single thin-buried shell scatter with dimensions of 30 feet by 10 feet with the long axis oriented east-west, parallel with the salt marsh. The shell lens was located just below the humus zone, was 0.2 feet thick and was intermixed with clean buff colored sand. No cultural material was recovered from the tests.

Post-hole Sample

Shell

73.2 gm.

Although this site is completely intact, it is felt that the site is too small to yield substantial information through intensive investigation. However, a test to obtain a comparative sample in conjunction with investigations of the larger sites would be advised. The site is thought to be identical in type to 38BU128 and although no cultural material was recovered, it is assumed that the site belongs to the Wilmington Phase. This classification is based on the close similarities of the site, in both location and size, to 38BU128, a known Wilmington Phase component.

38BU131 -- Lat. 32°17'15"N., Long. 80°47'45"W.

This site is located adjacent to a dirt road in the extreme southeastern corner of the Chicago Bridge and Iron Company's impact area. The site consists of a small shell scatter which is located adjacent to a dirt road. A portion of the site has been pushed from the road onto the east edge of the road. No stratigraphy was found in this area. However, post-hole tests revealed that a 10 foot by 5 foot shell lens was intact adjacent to the west edge of the road. The shell was thin, intermixed with sand, and about 0.2 feet thick. The shell scatter was located just a few inches below the site surface but was not visible on the surface. A post-hole sample was taken from the intact area and the entire shell scatter visible on the surface of the east side of the road was collected.

Post-hole Sample, west side of road

Shell	46.0 gm.
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Artifact Assemblage, surface, east side of road

Potsherds		
Wilmington Cord-marked (sherd-tempered)	1	6.1 gm.
Shell		321.7 gm.

Originally this site was probably a 25 foot by 10 foot shell lens with a long axis oriented northwest-southeast. The east half of the site which was originally in the road has been removed from its original stratigraphic context and re-deposited on the surface of the east road edge. The remaining portion of the site is considered too small to yield additional information. The site has a Wilmington Phase association and is considered to be similar in type to 38BU128 and 38BU130. This site further demonstrates the predominate Wilmington Phase utilization of the project area.

38BUL32 -- The Colleton Neck Lake Site: Lat. 32°17'25"N., Long. 80°47'42"W.

The Colleton Neck Lake Site was the largest site located by the survey. The site is situated in the northeast portion of the project area west of a large fresh water lake, and south of a drainage ditch which interconnects this lake with two ponds. The site is composed of a series of discrete shell heaps, over 30 in number, which were separated from each other by a distance of at least 50 feet. Because of the large number of these shell lenses, their subterranean occurrence, the dense tree cover, and the large spatial dimensions of the site, it was not possible to accurately map the exact location of all of these areas. Generally, the shell heaps occur within a 450 foot by 200 foot area with the long axis oriented north-south, parallel to and about 250 feet west of the lake shore.

The vegetation occurring on the site area was very distinctive. In the extreme northern edge of the site, dense oak-hickory climax forest with a fully developed canopy is present. South of this area a clear open area with only a few hardwoods is found. The area contains very little understory and an absence of leaf cover on the ground. Understory when found was predominately small clumps of saw palmetto. The southern border of the site contains an oak-hickory forest type but the trees occur more open and are not as tall nor have as fully developed a canopy as the forest in the northern area of the site. The saw palmetto understory south of the site is particularly dense.

The individual shell heaps are extremely dense and without intermixed soil. It was not feasible to obtain post-hole samples from each shell heap because of the large number of such heaps and the time restrictions placed on the survey. Instead, a single post-hole sample was obtained from the northern area of the site. The shell in this particular heap

extended from just below the site surface to a depth of 0.5 feet and was without intermixed soil. Probing of the other shell heaps indicates a similar condition. All of the shell heaps are covered by sand, but they are closest to the surface in their centers indicating a piled or heaped deposition. A few piles were visible in tree falls, but for the most part were not visible from surface inspection alone. No cultural material was recovered from the single test.

Post-hole Sample, shell heap at north edge of site

Shell

1515.6 g.m.

The Colleton Neck Lake Site appears to represent a village, communal gathering site, or a serially accreted site. Although no culturally diagnostic material was collected from this site, it is presumed to have a Wilmington Phase context. This association is based on the similarity of many of the site characteristics with known Wilmington Phase sites found within the project area. This site is an important site within the little known Wilmington Phase and needs to be further investigated.

SYNTHESIS AND EVALUATION OF THE CULTURAL RESOURCES

Prehistoric cultural resources recovered from within the impact area of the survey represent only three cultural phases of the cultural sequence of the South Atlantic Coastal Region. These phases include the Deptford Phase, which dates from 800 B.C. to about 500 A.D., the Wilmington and/or St. Catherine's Phase which dates from about 700 A.D. to about 1100 A.D., and the Savannah Phase which dates from 1100 A.D. to 1300 A.D. (Caldwell 1970; South 1973).

The Deptford Phase components have a completely different site location than components of the other three cultural phases. All Deptford components were found in a disturbed context along the beach of the Colleton River, adjacent to Victoria Bluff. This material was most frequent along the central portion of the Chicago Bridge and Iron Company's riverfront. The Deptford occupation within the impact area was probably restricted to the edge of the river bluff to take advantage of the riverine and estuary resources. The settlement-subsistence strategy can be interpreted as a facet of the coastal exploitative pattern of the transhumance adaptive system proposed by Milanich (1971) specifically for the Deptford Phase, and also for the cultural occupations which date from 2500 B.C. to about 1000 A.D. This adaptive pattern involves the seasonal movement of peoples from coastal areas up river valleys to take advantage of resources which are available in abundance only during certain times of the year (Milanich 1971: 111-113).

Because of the limited number of artifacts it is difficult to adequately determine whether some of the cultural material belongs to the Wilmington, St. Catherine's, or Savannah Phase. One of the complicating reasons for this situation is that only two decorative modes were present in the ceramic sample, plain and cord-marked. No complicated-stamped or burnished-plain ceramics, other than Colono-Indian, were recovered. Two of the sherds follow the Savannah Fine Cord-marked type description (Caldwell and McCann 1941), but might overlap with Wilmington Cord-marked sherds which are grit-tempered. Caldwell (1970: 91) has identified a new phase in the coastal sequence which he terms St. Catherine's. Ceramics from this phase are sherd-tempered, a trait characteristic of Wilmington Phase ceramics, but show characteristics

which are intermediate between the Wilmington Phase and the Savannah I Phase. A formal statement on the ceramics which characterize this phase has not yet been published, and it is therefore not possible to determine whether or not some of the sample falls into this phase. The cumulative time span for these three phases is from 700 A.D. to 1300 A.D. Since the majority of the ceramics in the survey sample belong to the Wilmington Phase, it is assumed that the Wilmington occupation of the area should date to the earlier half of this range. The problem of exact chronological positioning of the occupation within the impact area is one of the major problems which needs to be solved in further investigation.

A distinctive settlement pattern was noted for the Wilmington Phase components within the impact area. Each of the sites is composed of one or more discrete shell lenses which have a size ranging from 25 feet to about 50 feet, and are usually oval. The sites are located in the interior rather than on the shoreline of the Colleton River and are in all cases except one located adjacent to fresh water bodies rather than salt marshes. One small interior site, 38BU131, was not located in relationship to any water source. This pattern of fresh water site orientation is further reinforced by the observation that the long axis of the site, in most cases, is parallel with the fresh water source. Three of the sites (38BU124, 38BU126, and 38BU127) give the initial appearance of being associated with the river since they are currently eroding from the river bluff. However, it must be remembered that the river bluff has been rapidly eroding, and that when the site was originally occupied, the edge of the river bluff was well back from the sites. Furthermore all of these sites are located in close proximity to bodies of fresh water.

At site 38BU106 two triangular projectile points which presumably date to the Wilmington Phase were found along the former bottom of the fresh water lake which is now a salt marsh. This indicates that the fresh water resources were indeed utilized by Wilmington Phase inhabitants of the impact area. It further suggests that this lake was eroded by the Colleton River and drained subsequent to the Wilmington occupation of the area.

Three types of Wilmington Phase sites were recognized within the survey area. The distinctive characteristics common to each type are basically the number of individual shell heaps comprising the site, and the thickness and compactness of the shell heaps. Presented below is a list of the various characteristics which have been used to classify each site type and the number and identification of the components within each type. It is assumed that all interior sites, regardless of their negative artifact content date to the Wilmington Phase.

Type I	Type II	Type III
Multiple shell heaps (over 20), open site area, dense shell in the individual heaps. 1 component, 38BU132	Small cluster of shell heaps (2-6), both dense and loose shell areas. 2 components, 38BU124 and 38BU129.	Single shell heaps, only loose shell in heaps, shell area usually smaller than 30 feet. 5 components, 38BU126, 38BU127, 38BU128, 38BU130, and 38BU131.

DePratter (1975) in an archeological survey of Skidaway Island in Chatham County, Georgia, in an area which has very similar environment, located five interior Wilmington Phase sites. He notes that interior sites do not occur in the survey area until the Wilmington Phase. In addition to these five sites with known cultural association, two interior sites were located which contained no diagnostic cultural material. Two of the sites were located adjacent to fresh water sources.

The majority of the sites located during DePratter's survey fall close to Type I or Type II sites, only one site was found to be Type III. Two of the Wilmington sites were Type II, and two were Type I. The unidentified interior sites included both a Type II site and a Type III site. One of the Wilmington sites contained charred hickory nut fragments in a pit-like feature located below the plow zone (DePratter 1975: 35). DePratter's data show that there is a larger range to the number of shell heaps in the proposed Type II site. The vagaries of such a classificatory scheme must await further research on a regional basis.

Based on the results of the survey, and of DePratter's survey, a distinctive settlement-subsistence pattern is being hypothesized for the Wilmington Phase. This adaptive pattern is called the Coastal Lacustrine Adaptive Pattern. The main premise of this hypothesis is that the Wilmington Phase inhabitants were intensively exploiting the resources of the fresh water ponds and lakes found within the interior regions of the coastal plain. The exact nature of this adaptive pattern is unknown at this time and should be one of the major problems in the study of the Wilmington Phase. Three settlement types have been postulated within this adaptive pattern. The nature of these settlement types and their relationship to each other in a settlement system should be a major focus of further investigation involving the Wilmington Phase. The origin of this new adaptive pattern in the South Atlantic Coast might provide the framework necessary for understanding the transition from the Coastal Tradition, which is thought to last through the Wilmington Phase (Milanich 1971: 112), to the South Appalachian Mississippian Tradition, an adaptive pattern based on maize horticulture as well as specialized hunting and collecting subsistence activities (Ferguson 1971; Larson 1969; Smith 1974).

Numerous sites located close by the impact area contain components which date to phases earlier and later than those found within the research area. This suggests that the resources within the research area were not exploited by these groups, or that this exploitation was conducted with a non-preservable technology. In any event, it is clear that there was only limited use, if any, of the project area resources during prehistoric phases other than those previously discussed.

The historic material which was found on the beach adjacent to Victoria Bluff is clearly mid- to late-eighteenth century (Noël Hume 1970). The discussion and evaluation of the meaning of this material must await an underwater archeological survey since most if not all of the data is to be found in the river having eroded from the bluff top.

SITES ELIGIBLE FOR THE NATIONAL REGISTER OF HISTORIC PLACES

Three sites; 38BU124, 38BU129, and 38BU132; are considered to be of such important scientific value that they should be nominated to the National Register of Historic Places. All three of these sites represent a previously unknown adaptation within the Wilmington Phase, one of the poorest known cultural phases is the South Atlantic Coastal Sequence. Yet from an anthropological standpoint this is one of the most important since this phase represents the transition between two entirely different culture-ecological adaptive systems. The description and explanation of the mechanisms of change resulting in one system developing into or being replaced by another system, has important bearing on the problem of culture change in general. It is for this reason, as well as for the important information which these sites

would yield concerning the lifeways of the Wilmington Phase, that these sites are suggested for nomination to the National Register of Historic Places.

RECOMMENDATIONS

Five stratified sites, all of which are within the Wilmington Phase, have been located within the direct impact area of the Chicago Bridge and Iron Company's project. Two of these sites are small and are not considered to require additional investigation. The data which were recovered from these sites during the survey if augmented with a test pit are sufficient for analytical purposes. Intensive field investigation and excavation will be required to mitigate the adverse affects to the other three sites posed by the proposed construction activity.

This mitigation should focus on the particular problem of the nature and context of the distinctive Coastal Lacustrine Adaptive Pattern which until recently has not been recognized for the Wilmington Phase. This would require the intensive excavation of each of the sites which must be considered as units which functioned within a larger settlement-subsistence system represented by the Coastal Lacustrine Adaptive Pattern.

The set of culture-ecological variables found in an archeological context within each site must be explored intensively. These include detailed subsistence information obtained from macrofaunal analysis, coprolite analysis, pollen studies, and botanical identification of charred remains obtained through flotation.

Settlement information including community patterning, population estimates, and site location determinates would be obtained by locating house outlines, and the mapping of refuse areas and features. This would require detailed mapping, and the excavation of at least 50 percent of each site. Artifact distribution studies would also be necessary in delineating activity areas within each site. This would require controlled collection and statistical analysis of the resultant collection.

Hypotheses concerning socio-political organization would be developed using intersite analysis of the variability of cultural activities related to the previously discussed variables. To accomplish this, accurate dating of the sites, and the individual shell heaps within each site would be required. This is absolutely essential for intrasite and intersite functional analysis for the reasons pointed out earlier. A series of 40 radio-carbon determinations is felt necessary to establish the temporal control of the individual sites.

Because of the logistical problems involved in the laboratory analysis of large quantities of shell, and the use of the flotation technique, a field laboratory should be established to accomplish these tasks.

The adequate excavation of these three sites and the subsequent laboratory analyses and reporting is estimated to require a minimum of two months of field work with a substantially large crew and six months of laboratory analyses and reporting. Additionally, three weeks should be spent by an archeologist and an assistant in the preparation of a research design prior to the field investigation. This research design would explicitly outline the problems to be investigated, and suggest a well organized plan for executing the field work and obtaining data

relevant to solving the problems addressed. This research design would be made available to archeologists working on similar or related projects, or familiar with the area of investigation. This would assure that all problems pertinent to the study are being addressed.

The historic site, 38BU125, and the related portion of 38BU105 cannot be evaluated at this time. Recommendations concerning the significance of this site will be provided by the underwater survey.

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